



INSTITUTE FOR DEFENSE ANALYSES

NSD-5252

The New OMB Circular A-131: Revitalizing Value Engineering and
Expanding Opportunities for Its Use

James R. Vickers
Jay Mandelbaum
Anthony C. Hermes

August 2014

Institute for Defense Analyses
4850 Mark Center Drive
Alexandria, Virginia 22311-1882

Approved for public release;
distribution is unlimited.
IDA Log No. H 14-000894



The Institute for Defense Analyses is a non-profit corporation that operates three federally funded research and development centers to provide objective analyses of national security issues, particularly those requiring scientific and technical expertise, and conduct related research on other national challenges.

About This Publication

This work was conducted by the Institute for Defense Analyses (IDA) under contract DASW01-04-C-0003, Task AU-6-3140, "Value Engineering," for the Office of the Assistant Secretary of Defense for Research and Engineering." The views, opinions, and findings should not be construed as representing the official position of either the Department of Defense or the sponsoring organization.

Acknowledgments

The authors would like to thank Mr. Gene Porter for reviewing this publication.

Copyright Notice

© 2014 Institute for Defense Analyses
4850 Mark Center Drive, Alexandria, Virginia 22311-1882 • (703) 845-2000.

NSD-5252

The New OMB Circular A-131: Revitalizing Value Engineering and
Expanding Opportunities for Its Use

James R. Vickers
Jay Mandelbaum
Anthony C. Hermes

August 2014

TITLE “The New OMB Circular A-131: Revitalizing Value Engineering and Expanding Opportunities for Its Use.”

When the Office of Federal Procurement Policy (OFPP) released the new Office of Management and Budget (OMB) Circular A-131, entitled “Value Engineering” in January, 2014, it not only reenergized the 50 plus year old Value Engineering (VE) program, but also clarified VEs role in the current acquisition environment and offered opportunities to expand its use.

Background.

Value Engineering, also known as Value Analysis or Value Management, is a methodology for examining the function of a project, product, or process and looking for ways to perform the function more economically or eliminate it entirely. During World War II, Lawrence D. Miles of General Electric invented VE as a way to address the material shortages caused by the war. For example aluminum and titanium were scarce and in high demand; Miles examined the function that the material was performing to determine whether steel or some other more available material could perform the function. The methodology proved so successful that it was used after the war and then in the late 1950s the Navy adopted it.

Despite its success, little progress was made when the government initially adopted VE, because contractors were reluctant to propose a change that would save the government money, if it also resulted in lower revenues and profit for them. To address this problem, the government quickly offered contractors a share of the saving the proposals generated and as a result many Value Engineering Change Proposals (VECPs) were forthcoming. Figure 1 is a generic example of the financial calculations for a VECP.

<ul style="list-style-type: none"> • Original firm fixed price (FFP) contract - \$2,200,000 • 10% profit \$200,000 (\$2,000,000 cost basis) • Number units - 500 • Original unit price - \$4,400 • Number units affected by VECP - 300 • Instant Unit Cost Reduction (IUCR) - \$1,500 • New unit price - \$2,900 • Contractor's (KR) allowable Development & Implementation Costs (CADIC) - \$25,000 • Government Costs - \$15,000 • Voluntary VECP, parties have agreed to a 50/50 (Govt/KR) savings split 	<p>What is the shared savings?</p> <table> <tr> <td>IUCR</td><td>\$1,500</td></tr> <tr> <td>x Number of Units</td><td>x 300</td></tr> <tr> <td>= Gross VECP</td><td>\$450,000</td></tr> <tr> <td>- CADIC</td><td>- \$25,000</td></tr> <tr> <td>- Government Costs</td><td>- \$15,000</td></tr> <tr> <td>= Net Acquisition Savings (NAS)</td><td>\$410,000</td></tr> <tr> <td>x KR Share Rate (%)</td><td>x .50</td></tr> <tr> <td>= KR's Share of Savings</td><td>\$205,000</td></tr> <tr> <td>and</td><td></td></tr> <tr> <td>x Govt Share Rate (%)</td><td>x .50</td></tr> <tr> <td>- Govt Share of Savings</td><td>\$205,000</td></tr> </table> <p>How is Contractor Profit Affected?</p> <table> <tr> <td>Original profit (not changed by VECP)</td><td>\$200,000</td></tr> <tr> <td>+ KR share of savings</td><td>\$205,000</td></tr> <tr> <td>= New Profit</td><td>\$405,000</td></tr> </table>	IUCR	\$1,500	x Number of Units	x 300	= Gross VECP	\$450,000	- CADIC	- \$25,000	- Government Costs	- \$15,000	= Net Acquisition Savings (NAS)	\$410,000	x KR Share Rate (%)	x .50	= KR's Share of Savings	\$205,000	and		x Govt Share Rate (%)	x .50	- Govt Share of Savings	\$205,000	Original profit (not changed by VECP)	\$200,000	+ KR share of savings	\$205,000	= New Profit	\$405,000
IUCR	\$1,500																												
x Number of Units	x 300																												
= Gross VECP	\$450,000																												
- CADIC	- \$25,000																												
- Government Costs	- \$15,000																												
= Net Acquisition Savings (NAS)	\$410,000																												
x KR Share Rate (%)	x .50																												
= KR's Share of Savings	\$205,000																												
and																													
x Govt Share Rate (%)	x .50																												
- Govt Share of Savings	\$205,000																												
Original profit (not changed by VECP)	\$200,000																												
+ KR share of savings	\$205,000																												
= New Profit	\$405,000																												

Figure 1: Generic VECP Example

The Department of Defense (DoD) developed an evolving series of contract clauses to address VECP submittals and shared savings. These were consolidated and superseded on 1 April 1984 by the release of the Federal Acquisition Regulation (FAR), which included Part 48 and Part 52.248 to address VE. With VE in the FAR, its use by other agencies grew, especially in the architect-engineering and construction areas, in fact, separate clauses for these areas were written into the FAR.

To encourage other agencies to use VE and take advantage of the savings opportunities, the OMB issued the original version of the OMB Circular A-131 in 1988 and reissued it again in 1993 to require the use of VE as a management tool.

Despite the billions of dollars saved by VE, its use, at least by contractors, diminished in the mid-1990s due to a combination of factors. The first factor was that with the end of the Cold War, there were fewer large, long running production contracts that offered significant future returns on near term VE changes. More importantly, with the inception of Acquisition Reform and performance based specifications, there was a belief by many, that there was no need for VE, because contractors were free to make any changes they wanted (as long as they did not affect the required system performance) and keep all of the savings. Additionally the growth of other methodologies for cost savings, like LEAN and Six Sigma, gave many the idea that the government did not need VE. In 1993, the DoD reported more \$5 billion in VE savings/cost avoidance, VECPs contributed less than \$20 million to that figure.

However, even during the times when VECPs were much more prolific, there have still been problems (e.g., many from customers, and especially their technical communities) regarding their use. Comments, such as “that should have been in their bid,” “the change was obvious,” or “why should we change it to save them money or give them more profit?,” were common. Problems with sharing operating and support costs stemmed from difficulties in estimating future savings and paying the contractor its share of savings because the savings is typically in a future contract under a different appropriation and with a different customer. The contracting community had its own concerns—additional time and effort to process a VECP, lack of experience and training in processing VECPs, and fear of being criticized for giving contractors a windfall. Often the contracting community sought other ways (e.g., insisting on processing as an engineering change proposal (ECP) or delaying acceptance until the contractor was so far along in the performance of the contract that it eliminated the benefits of the VECPs) to implement the cost reducing change instead of processing a VECP. Consequently, contractors became reluctant to submit VECPs.

The recently revised Circular A-131 addresses many of these issues and by encouraging VE, offers hope that other challenges can also be addressed in further updates. For example, the Circular clarifies wording on the definition of “required change” in contracts, advocates for the use of VE on services, and suggests synergies with LEAN and Six Sigma. Based on Federal Register comments and responses to the current revision of the Circular, OMB has indicated that there is a need to simplify the FAR provisions.

Contract change.

The VE FAR 52.248-1(b)(1) mandates that a VECP must lead to a change in the contract. This requirement may have been included to enable the government to use the change in future contracts even though it had to share some of the savings with the contractor. However, since a VECP usually impact the specifications and the Military Standards on Configuration Management cited in the contract, government contracting officers have addressed VECP processing in a manner similar to the way that they address ECPs. Consequently many of the government contracting officers believe a VECP must change the specification or at least the Statement of Work (SOW).

To make matters worse, there was a mistaken belief that if the contractor could make the VE change without a contract change, he would do so and keep all the savings. This may happen in some cases, however, if the non-recurring cost of making the change was so great that it would offset most, if not all,

of the savings on the current contract, the contractor would not make the change, without the VECP-provided share of the savings on future contracts. Consequently, contractors and some government advocates of incorporating a VECP that could save money have searched to find ways of addressing the need for a change in the contract. They may have added a requirement to use what the VECP proposed. Some more enlightened contracting offices accepted the VECP as a “change in the contract”—a practice now sanctioned by the new Circular A-131.

VE on Services.

Today the government spends more money on services than it does on hardware. VE can also work for services. To date, VE has not been applied often to services, although the Army has had some successes with in-house efforts. One problem is that the clause, while applicable to services, does not lend itself to addressing savings on services. It concentrates on “per unit” savings, which work well for hardware, but prove more challenging for services. For example, consider that a contractor proposes a VECP that involves buying some new software. This new software could reduce the labor needed to perform a task by 40 percent. If this labor is bought on a per hour basis, it would be highly possible that the price per hour for labor would go up. This would be true even though the total cost of the effort would be down by nearly 40 percent because, with the limited number of hours, the per-hour price would have to be increased by the amortized cost of the nonrecurring costs and contractor’s share of the incentive. This would be a problem for those only buying a few hours of services because their cost might go up because they do not buy enough services to realize the overall saving. Also with many services being bought on an Indefinite Deliverable/Indefinite Quantity (IDIQ) basis, there is not a firm baseline against which to demonstrate savings. Recognizing this problem, and an opportunity, Circular A-131 has a renewed emphasis on expanding VE into services. For example, existing payment mechanisms may be adaptable to these situations but this is unlikely to occur in practice without some official precedent established through such renewed emphasis.

LEAN and Six Sigma synergies

The new Circular A-131 also states that LEAN and Six Sigma can go hand and hand with VE. This may open the door for some LEAN or Six Sigma projects being processed as VECPs. In the past some LEAN and Six Sigma projects may have been rejected by the contractor, because: 1) the contractor would have to make the investment to incorporate these projects, but not allowed to share in the resulting savings beyond the current contract; and 2) these projects could not be processed as VECPs, since they were not contract specific and did not require a contract change to implement. The new Circular A-131 now places these types of projects on equal footing with VE; and therefore, they should be able to be proposed and processed as VECPs.

A major advantage of being able to propose a project as a VECP is that VECPs address “negative instant contract savings.” Negative Instant contract savings occurs when a change produces savings, but the nonrecurring cost of the change to achieve the savings is greater than the savings on the instant (current contract). The amount that the nonrecurring cost exceeds the savings is what is called the negative instant contract savings. The VECP clause provides that negative instant contract savings be added to the contract price and offset against the contractor’s share of future savings on future contracts. Negative instant contract savings have been a problem with LEAN and Six Sigma projects, because if the contractor cannot get net positive savings on the contract, the contractor cannot do the project, since

there is no way to recover the negative instant savings. With a VECP the contractor can recover these costs.

Possible FAR Revisions.

Recognizing some of these short comings and in response to some of the public comments to Circular A-131, OFPP agreed to work with the FAR Council to look at possible revisions to the FAR VE clauses.¹ One clause that is ripe for simplification is the basic VE clause, FAR 52.248-1. This clause has remained virtually unchanged for the past 20 years (except for making it possible to extend the sharing rates and period). But prior to that it was changed often and usually to address some problem or foreseen problem. For example, the proscription in 52.248-1 3 (d) as to what is not a VECP, i.e. "A reduction in the items to be delivered", may have come about from contractors proposing, as a VECP, a reduction in deliverable quantities to save money and share in the savings. The government did not want to reward the contractor for suggesting such a change so the clause may have been changed to avoid it. However, there might be instances, where the government could benefit from such a change and may even want to reward a contractor for proposing it. The provision complicates matters, because a contractor would lack the incentive (in terms of increased revenue or profit) to propose such a change. Of course the normal 50 percent savings share may be a windfall and the contracting officer should have the flexibility to negotiate a more equitable share, as appropriate.

The need to change the FAR VE provisions to better address VE in services is even more compelling and could potentially prove even more rewarding. On service contracts, the lack of firm quantities and the problem of addressing savings on a per unit basis need to be addressed, as well as concerns regarding whether the savings will actually be realized. A new clause to address VECPs for services, such as the separate clause, 52.248-3, which addresses VECPs for construction, may be the ultimate answer; however, a new clause for services may take some time to be approved. Perhaps a better short term solution would be to modify the existing basic clause by adding a new sub paragraph (9) that addresses the requirements for a VECP submittal to the other terms of 52.248-1(b) c. This additional subparagraph could say in essence, "On a VECP for services, propose how savings should be measured, development costs paid, and shared savings verified and paid." This would put the onus on the contractor to address how these critical questions should be answered. The subparagraph would have to be accompanied by the addition of some language allowing the contracting officer the maximum flexibility, consistent with the VE clauses, and the FAR, to accommodate acceptance of VECPs for services and the sharing of savings to allow adequate incentives to reward and to encourage the submittal of service VECPs. If this short term solution were successful and VECPs for services were received, they would provide a good experience base for developing a new services VECP clause.

New opportunities

The release of the new Circular A-131 should be taken as an opportunity for contractor and government program managers to improve their programs by funding desired changes through the VECP process. DoD's Office of the Secretary of Defense (OSD) has advocated greater use of VE even before the release of the new Circular A-131.² Contractors should take advantage of this emphasis and propose VECPs to

¹ Federal Register / Vol. 78, No. 248 / page 78400.

² Under Secretary of Defense Memorandum, Subject: Value Engineering (VE) and Obtaining Greater Efficiency and Productivity in Defense Spending, December 6, 2011.

address problems, and to maintain their competitive advantage by introducing new, more effective and cost efficient technology that they want, but otherwise could not be funded. They should also use VECs to increase their profit through sharing in the savings. To do this, the emphasis should start at the top. Recognizing this, Under Secretary of Defense for Acquisition, Technology and Logistics sent a letter to the CEOs of 50 major defense contractors to encourage them to pursue VE. How many have responded is not clear, but some have. To encourage the use of VE, successful contractors with good VE programs require that VE be addressed in each internal program review. This normally consists of a simple chart showing what VECs have been submitted, are planned to be submitted, or are being considered. The dialog the chart would generate provides an opportunity to institutionalize the process. Government program managers could embrace such a requirement and make the inclusion of such a chart a requirement in program reviews. Additionally both the government and contractors should require their personnel to take the VE training that is to be developed by the Federal Procurement Institute and the Defense Acquisition University, as part of the release of the new Circular A-131.³

As a further incentive to encourage greater use of VE, both the government and the contractors should allow their program managers to retain a substantial part of the VE savings or incentives received from successful VECs and use those savings generally as they see fit on the program. This is important because any change involves some risk and with those incorporating new technologies or process changes, as VECs often do, there is even greater risk. If all the rewards go to headquarters or the contractor's general profits, the program manager responsible for the VEC change would have little incentive to do so, because he would be taking all the risk, with no reward. Some of those reviewing the new Circular A-131 suggested this but it would be difficult to incorporate in a circular. Some contractors have been successful in doing this and therefore may provide some lessons learned and best practices for the government and other contractors to consider in making changes in this area.

To encourage VE on services there may be a need to jump start the VEC process. Prior to 1988 the DoD required a Mandatory VE program on all major program starts. Mandatory VE (FAR 48.101(b)(2) is where the government funds a separate line item on the contract requiring the contractor to perform VE studies, usually in select areas that may show promise for savings. If the contractor submits a VEC and it is accepted, the contractor's share of the savings is significantly less because the government funded the study. This clause could be required on service contracts over \$100M. The program office could be required to withhold a small amount from its budget (e.g. .5%) and use it to fund a mandatory program. Unlike the prior Mandatory VE programs, the contract could require the resultant VEC to address how savings would be measured, and where the savings payment shares and repayment for development savings would come from.

A similar approach could be tried for life cycle savings. There are many opportunities for savings on operating and support costs, where a large portion of the life cycle costs are incurred. For example, a proposal could be made to configure some delivered hardware as high fidelity simulators that have the potential of significantly reducing the amount of peacetime field training needed. For such changes the FAR offers the contractor a share of collateral savings, which are non-acquisition savings that occur as a result of the VEC. The FAR allows the contractor to receive 20-100% of a typical years' savings as a reward for submitting such a VEC (FAR 48.104-3(b)). Despite this incentive, there is a degree of uncertainty involved because, the contracting officer determines typical year's savings at his/her sole

³ Federal Register / Vol. 78, No. 248 / page 78400.

discretion. However, the real problem is how the effort is paid for, both in terms of development costs and shared saving. On hardware VECs the funds and savings are immediately available out of money allocated to buy the hardware. This is not the case with life cycle savings. They may occur over many years in the future and finding today's dollars to fund some life cycle savings in future years is difficult because of other priorities for today's money. Because of this contractors are reluctant to pursue these types of VECs. To address this problem, a fund could be established to cover the costs and savings share for life cycle VECs. To enable it to be used across programs, this fund could be established at the Program Executive Office (PEO) level (or equivalent) and resourced by taking a percentage of the hardware acquisition money which would be replenished as savings are achieved.

Conclusion

In summary the new OMB Circular A-131 offers both the contractors and the government a new opportunity to use VE and its related disciplines to save money and to change the acquisition process to allow for even greater savings.

REPORT DOCUMENTATION PAGE			<i>Form Approved</i> <i>OMB No. 0704-0188</i>		
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.					
1. REPORT DATE (DD-MM-YY) August 2014		2. REPORT TYPE Final		3. DATES COVERED (From - To)	
4. TITLE AND SUBTITLE The New OMB Circular A-131: Revitalizing Value Engineering and Expanding Opportunities for Its Use			5a. CONTRACT NO. DASW01 04 C 0003		
			5b. GRANT NO.		
			5c. PROGRAM ELEMENT NO(S).		
6. AUTHOR(S) James R. Vickers, Jay Mandelbaum, Anthony C. Hermes			5d. PROJECT NO.		
			5e. TASK NO. AU-6-3140		
			5f. WORK UNIT NO.		
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Institute for Defense Analyses 4850 Mark Center Drive Alexandria, VA 22311-1882			8. PERFORMING ORGANIZATION REPORT NO. IDA NS D-5252		
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) Office of the Assistant Secretary of Defense For Research and Engineering Pentagon Washington, DC 20301			10. SPONSOR'S / MONITOR'S ACRONYM(S) ASD(R&E)		
			11. SPONSOR'S / MONITOR'S REPORT NO(S).		
12. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited.					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT When the Office of Federal Procurement Policy (OFPP) released the new Office of Management and Budget (OMB) Circular A-131, entitled "Value Engineering" in January, 2014, it not only reenergized the 50 plus year old Value Engineering (VE) program, but also clarified VE's role in the current acquisition environment and offered opportunities to expand its use. The new OMB Circular A-131 offers both the contractors and the government a new opportunity to use VE and its related disciplines to save money and to change the acquisition process to allow for even greater savings.					
15. SUBJECT TERMS value engineering, value management, value analysis, value engineering change proposal, OMB Circular A-131					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT UU	18. NO. OF PAGES 6	19a. NAME OF RESPONSIBLE PERSON
a. REPORT U	b. ABSTRACT U	c. THIS PAGE U			19b. TELEPHONE NUMBER (Include Area Code)

